

**To:** Rumrill, Nancy[Rumrill.Nancy@epa.gov]  
**From:** Doug Bartlett  
**Sent:** Wed 3/1/2017 9:27:53 PM  
**Subject:** RE: Question regarding step rate testing

Thanks for the info Nancy – that helps!

**Doug**

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**From:** Rumrill, Nancy [mailto:Rumrill.Nancy@epa.gov]  
**Sent:** Wednesday, March 1, 2017 2:27 PM  
**To:** Doug Bartlett  
**Subject:** RE: Question regarding step rate testing

The fracture gradient tests conducted by Excelsior were plotted at increasing injection rates but not at steps of 15 or 30 minutes as required in a conventional SRT. Our contractor suggests using the Region 8 SRT guidance (attachment INFO-steprate(1) for use in the design of a SRT.

Thanks, Nancy



United States Environmental Protection Agency

*Nancy Rumrill (rumrill.nancy@epa.gov)*

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**From:** Doug Bartlett [<mailto:DBartlett@clearcreekassociates.com>]

**Sent:** Wednesday, March 01, 2017 7:40 AM

**To:** Rumrill, Nancy <[Rumrill.Nancy@epa.gov](mailto:Rumrill.Nancy@epa.gov)>

**Cc:** Rebecca Sawyer <[rsawyer@excelsiormining.com](mailto:rsawyer@excelsiormining.com)>; Alison Jones <[ajones@clearcreekassociates.com](mailto:ajones@clearcreekassociates.com)>; Roland Goodgame <[rgoodgame@excelsiormining.com](mailto:rgoodgame@excelsiormining.com)>

**Subject:** Question regarding step rate testing

Nancy – in our meeting last week, you may recall we had a discussion about step rate testing to verify the fracture gradient proposed for the Gunnison project. I have attached two papers that I found online from EPA regarding the methodology for step rate testing. Are there any other papers that I should be reviewing? The step rate methodology that is described seems to match with what Excelsior did to obtain the fracture gradient value proposed in the UIC application.

Any guidance you can give me on this would be greatly appreciated!

Thank you,

Doug Bartlett

**R. Douglas Bartlett, RG, CHG**

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